

Author Index

A

- Adam, R.; Garat, M.; Laslaz, G.; Jacob, S.; Meyer, P.; Guerin, P.H.
State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys821
- Adams, A.; Delaney, I.N.
Examination of Runner System Design in Vertically Parted Molding753
- Alagarsamy, A.; Srinivasan, M.N.; Chundu, S.N.; Bray, D.E.
Detection of Stresses in Ductile Iron Bars Using L_{CR} Wave Technique309
- Alagarsamy, A.
Ductile Iron Treatment Using Pure Mg in a Modified Tundish Ladle235
- Alagarsamy, A.; Venugopalan, D.
Factors Affecting Fatigue Strength of Commercial Ductile Iron Castings337
- Alhainen, J.; Yang, Y.
Quantitative Study on the Shrinkage Behavior of SG Iron with Derivative Dilatation Analysis129
- Aliravci, C.A.; Gruzleski, J.E.; Dimayuga, F.C.
Effect of Strontium on the Shrinkage Microporosity in Magnesium Sand Castings353
- Alva, J.
Mixed Pressurized/Nonpressurized Gating System for Vertically Parted Molds761
- Ananthanarayanan, L.; Samuel, F.H.; Gruzleski, J.E.
Thermal Analysis Studies on the Effect of Cooling Rate on the Microstructure of 319 Aluminum Alloy383
- Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Begeman, M.S.; Faron, D.R.; Vaughan, B.J.; Riggs, D.O.; Thomas, R.M.
Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings289
- Armbruster, D.R.; Johnson, C.K.; Cooke, R.C.
Proper Gassing of Ester-Cuped Phenolic Coldbox Cores and Molds483
- Askeland, D.R.; Sun, Y.; Tsai, H.-L.
Investigation of Wetting and Wicking Properties of Refractory Coating in the EPC Process297
- Askeland, D.R.; Tseng, C.-H.E.
Study of the EPC Mold Filling Process Using Metal Velocity and Mass and Energy Balances519
- Askeland, D.R.; Tseng, C.-H.E.
Thermal and Chemical Analysis of the Foam, Refractory Coating and Sand in the EPC Process509
- Aubrey, L.S.; Friesel, A.; Karamon, R.J.
Filtration of High-Alloy, Corrosion-Resistant and Nickel-Base Valve Body Castings209

B

- Bäckerud, L.; Chai, G.
Factors Affecting Modification of Al-Si Alloys by Adding Sr-Containing Master Alloys847
- Baillod, C.R.; McIntyre, S.W.; Rundman, K.B.; Rush, P.; Sandell, J.; Stillwell, B.
Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report201
- Balakrishna, J.V.; Bradley F.J.; Hoopes, J.A.; Kannan, S.; Heinemann, S.
A Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems917
- Bansal, V.; Shivani, A.
A Model Study of Treatment Inside the Mold179
- Bartelt, P.F.; Bradley, F.J.; Fung, C.A.; Heine, R.W.
Considerations in the Application of Numerical Simulation to Shrinkage Prediction in Ductile Iron Castings155
- Bartosiewicz, L.; Krause, A.R.; Kovacs, B.; Putatunda, S.K.
Fatigue Crack Growth Behavior of Austempered Ductile Cast Iron135
- Bates, C.E.; Griffin, J.; Littleton, H.E.
Accuracy and Precision of Iron and Aluminum Castings Made by EPC, Nobake and Green Sand Methods323
- Begeman, M.S.; Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Faron, D.R.; Vaughan, B.J.; Riggs, D.O.; Thomas, R.M.
Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings289
- Bellity, P.; Kallien, L.H.; Sturm, J.C.; Odor, F.
Optimization of Casting Process through Simulation for Aluminum Castings1067
- Bermel, C.L.; Hornby-Anderson, S.A.
Electric Arc Furnace Bottom Stirring: A Look at Technologies and Benefits147
- Berry, J.T.; Suri, V.K.; Huang, H.; Hill, J.L.
Applicability of Thermal Parameter-Based Porosity Criteria to Long-Freezing Range Aluminum Alloys399
- Berry, J.T.; Shamsuzzoha, M.; Hogan, L.M.
Growth Crystallography of Eutectic Phases in Unmodified Al-Si Casting Alloys619
- Boutorabi, S.M.A.; Runyoro, J.; Campbell, J.
Critical Gate Velocities for Film-Forming Casting Alloys: A Basis for Process Specification225
- Bradley, F.J.; Bartelt, P.F.; Fung, C.A.; Heine, R.W.
Considerations in the Application of Numerical Simulation to Shrinkage Prediction in Ductile Iron Castings155
- Bradley F.J.; Hoopes, J.A.; Kannan, S.; Balakrishna, J.V.; Heinemann, S.
A Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems917

Bray, D.E.; Srinivasan, M.N.; Chundu, S.N.; Alagarsamy, A. Detection of Stresses in Ductile Iron Bars Using L_{CR} Wave Technique	309
Brevick, J.R.; Wyman, K.A. Effects of Vacuum Assist in High-Pressure, Horizontal, Cold-Chamber Diecasting	529
Brody, H.D.; Viswanathan, S. Microporosity in Grain-Refined Aluminum-4.5% Copper Alloys and Its Relation to Casting Practice	685

C

Calboreanu, G.A. Hardness and Hardness Distribution Influence on Wear Performance of Blades in Centrifugal Blasting Machines	887
Campbell, J.; Runyoro, J.; Boutorabi, S.M.A. Critical Gate Velocities for Film-Forming Casting Alloys: A Basis for Process Specification	225
Carey, P.R.; Granlund, M.J.; Krysiak, M.B. Measurement of Core and Mold Quality Using a Mold Quality Indicator	37
Chai, G.; Bäckcrud, L. Factors Affecting Modification of Al-Si Alloys by Adding Sr-Containing Master Alloys	847
Chandruppa, K.G.; Seshan, S. Studies on Ester Binders and Ester-Hardened Molding Sands	363
Chen, H.X.; Ding, H.; Li, R.D. Antimony-Containing Medium-Manganese Cast Steel	221
Chundu, S.N.; Srinivasan, M.N.; Bray, D.E.; Alagarsamy, A. Detection of Stresses in Ductile Iron Bars Using L_{CR} Wave Technique	309
Church, N.; Rohatgi, P.K.; Ray, S.; Nath, D.; Peters, D. Cast Lead-Free Copper-Graphite Composite Alloys With Improved Machinability	1
Cochran, B.P.; Fenyes, M.L.; Jeanneret, J.L.; Mulac, R.P.; Crepeau, P.N. Flux Practice in Aluminum Melting	737
Cooke, R.C.; Armbruster, D.R.; Johnson, C.K. Proper Gassing of Ester-Cured Phenolic Coldbox Cores and Molds	483
Copi, K.W. Improving Energy Efficiency in a Coreless Induction Heel Melter	571
Cousineau, D.; Fasoyinu, F.A.; Dion, J.L.; Matte, R.A.; Davis, K.G.; Sahoo, M. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Crepeau, P.N.; Cochran, B.P.; Fenyes, M.L.; Jeanneret, J.L.; Mulac, R.P. Flux Practice in Aluminum Melting	737

D

Davé, K.; Fasoyinu, F.A.; Dion, J.; Sahoo, M. Comparison of Mechanical Properties of Cu-Base Alloys in ASTM and ISO Permanent Test Bar Molds	73
Davis, K.G.; Fasoyinu, F.A.; Dion, J.L.; Cousineau, D.; Matte, R.A.; Sahoo, M. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Dawson, J.V.; Sage, A.M. A High-Carbon, V-Mo, High-Strength Gray Cast Iron for Castings Subjected to Thermal Fatigue	253

Daxin, S.; Fuli, Z.; Weimin, X.; Entao, Z. Application of DSM-2 Software on Pouring Process Design	1087
Delaney, I.N.; Adams, A. Examination of Runner System Design in Vertically Parted Molding	753
Dhindaw, B.K.; Giese, S.; Stefanescu, D.M.; Piwonka, T.S.; Sen, S. An Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects: Phase II	785
Dimayuga, F.C.; Aliravci, C.A.; Gruzleski, J.E. Effect of Strontium on the Shrinkage Microporosity in Magnesium Sand Castings	353
Ding, H.; Chen, H.X.; Li, R.D. Antimony-Containing Medium-Manganese Cast Steel	221
Dion, J.; Fasoyinu, F.A.; Sahoo, M.; Davé, K. Comparison of Mechanical Properties of Cu-Base Alloys in ASTM and ISO Permanent Test Bar Molds	73
Dion, J.L.; Fasoyinu, F.A.; Cousineau, D.; Matte, R.A.; Davis, K.G.; Sahoo, M. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Dmitrovic, R.; Grozdanic, V.; Novosel-Radovic, V. Contribution to the Research of Hot Tears in Steel Castings	265
Duca, W.J.; Powell, W.L. Updating an Induction Melt Shop: A Progress Report	639
Dudzik, B.E.; Turpin, P.D. Storm Water Regulation Compliance by Foundries	935
Dziekonski, P.E.; Hoyt, D.F. Reactivity Measurement of Acid Soluble Materials in Foundry Sand and Its Relationship to Performance of Some Chemical Binder Systems	469

E

Entao, Z.; Fuli, Z.; Weimin, X.; Daxin, S. Application of DSM-2 Software on Pouring Process Design	1087
----------------------------------------------------------------------------------------------------------------	------

F

Fang, L.-Y.; Loper, Jr., C.R. Development of a High Modulus Graphitic Cast Alloy	969
Faron, D.R.; Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Begeman, M.S.; Vaughan, B.J.; Riggs, D.O.; Thomas, R.M. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
Faron, D.R.; Vaughan, B.J.; Sully, L.J.D. Porosity Characterization by Industrial Volumetric Computed Tomography	281
Fasoyinu, F.A.; Dion, J.; Sahoo, M.; Davé, K. Comparison of Mechanical Properties of Cu-Base Alloys in ASTM and ISO Permanent Test Bar Molds	73
Fasoyinu, F.A.; Dion, J.L.; Cousineau, D.; Matte, R.A.; Davis, K.G.; Sahoo, M. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Fenyes, M.L.; Cochran, B.P.; Jeanneret, J.L.; Mulac, R.P.; Crepeau, P.N. Flux Practice in Aluminum Melting	737
Fortin, G.; Louchez, P.; Samuel, F.H. Factors Controlling Heat Transfer Coefficient at the Metal-Mold Interface During Solidification of Aluminum Alloys: An Analytical Study	863

Fras, E.; Kapturkiewicz, W.; Lopez, H.F. Macro and Micro Modeling of the Solidification Kinetics of Castings	583
Frederick, P.S.; Guichelaar, P.J.; Li, S.; Shaw, M.L.; Smart, R.H. Pyrolysis-Related Artifacts in EPC Ductile Iron	57
Friesel, A.; Karamon, R.J.; Aubrey, L.S. Filtration of High-Alloy, Corrosion-Resistant and Nickel-Base Valve Body Castings	209
Frost, J.M.; Stefanescu, D.M. Melt Quality Assessment of SG Iron Through Computer-Aided Cooling Curve Analysis	189
Fuli, Z.; Weimin, X.; Entao, Z.; Daxin, S. Application of DSM-2 Software on Pouring Process Design	1087
Fung, C.A.; Bradley, F.J.; Bartelt, P.F.; Heine, R.W. Considerations in the Application of Numerical Simulation to Shrinkage Prediction in Ductile Iron Castings	155

G

Garat, M.; Laslaz, G.; Jacob, S.; Meyer, P.; Guerin, P.H.; Adam, R. State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys	821
Gee, R. New Refractories for Cupola Meltshops	777
Genest, D.; Krejci, J.; Malavsky, N. The Coordinate Measuring Machine (CMM): New Technology for Foundry Tooling	609
Giese, S.; Stefanescu, D.M.; Piwonka, T.S.; Sen, S.; Dhindaw, B.K. An Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects: Phase II	785
Goodrich, G.M. Failure Analysis of Pump Impellers	63
Goodrich, G.M.; Lobenhofer, R.W.; Murchie, B.T.; Tuggle, C.L. Reproducibility of Mechanical Property Measurements in Ductile Iron	1025
Gracia, B.; Sahoo, M.; Lacroix, R.J.; Newcombe, P. Influence of C, Si and Nb on the Structure and Mechanical Properties of Cast Monels	239
Granlund, M.J.; Carey, P.R.; Krysiak, M.B. Measurement of Core and Mold Quality Using a Mold Quality Indicator	37
Gray, S.R.; Highfield, J.W. Effect of an Engineered Sodium Bentonite on the Properties of a Green System Sand	793
Green, R.A.; Heine, R.W. Properties of Green Sand Bonded with Mixtures of Calcium and Sodium Bentonites	499
Goudswaard, J.; Heine, R.W. Thermochemistry of Acid Electric Arc Melting of Carbon Cast Steel	561
Griffin, J.; Bates, C.E.; Littleton, H.E. Accuracy and Precision of Iron and Aluminum Castings Made by EPC, Nobake and Green Sand Methods	323
Grozdanic, V.; Novosel-Radovic, V.; Dmitrovic, R. Contribution to the Research of Hot Tears in Steel Castings	265
Gruzleski, J.E. Art and Science of Modification, The: 25 Years of Progress	673
Gruzleski, J.E.; Aliravci, C.A.; Dimayuga, F.C. Effect of Strontium on the Shrinkage Microporosity in Magnesium Sand Castings	353
Gruzleski, J.E.; LaOrchan, W. Grain Refinement, Modification and Melt Hydrogen— Their Effects on Microporosity, Shrinkage and Impact Properties in A356 Alloy	415
Gruzleski, J.E.; Ananthanarayanan, L.; Samuel, F.H. Thermal Analysis Studies on the Effect of Cooling Rate on the Microstructure of 319 Aluminum Alloy	383
Guerin, P.H.; Garat, M.; Laslaz, G.; Jacob, S.; Meyer, P.; Adam, R. State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys	821
Gugel, M.D.; Rundman, K.B. Development of an As-Cast Age-Hardenable Cu-Ni-Sn Alloy	113
Guichelaar, P.J.; Li, S.; Shaw, M.L.; Frederick, P.S.; Smart, R.H. Pyrolysis-Related Artifacts in EPC Ductile Iron	57
Gundlach, R.B.; Whelan, E.P. Critical Temperatures in Ferritic Ductile Irons	713
Guo, T.; Wu, M.H.; Wang, Y.X.; Zhang, Q.X. Computer-Aided Chill Design for Steel Castings	27
Guo, X.; Stefanescu, D.M. Directional Solidification of Al-Base/SiC Particle Metal Matrix Composite Castings	273

H

Hartmann, G.C.; Kallien, L.H. Determination of Critical Solidification Times in Ductile Iron Castings	719
Hayrynen, K.L.; Moore, D.J.; Rundman, K.B. Tensile and Fatigue Properties of Relatively Pure ADI	93
Heine, R.W.; Bradley, F.J.; Bartelt, P.F.; Fung, C.A. Considerations in the Application of Numerical Simulation to Shrinkage Prediction in Ductile Iron Castings	155
Heine, R.W.; Green, R.A. Properties of Green Sand Bonded with Mixtures of Calcium and Sodium Bentonites	499
Heine, R.W.; Goudswaard, J. Thermochemistry of Acid Electric Arc Melting of Carbon Cast Steel	561
Heinemann, S.; Bradley F.J.; Hoopes, J.A.; Kannan, S.; Balakrishna, J.V. A Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems	917
Highfield, J.W.; Gray, S.R. Effect of an Engineered Sodium Bentonite on the Properties of a Green System Sand	793
Hill, J.L.; Suri, V.K.; Huang, H.; Berry, J.T. Applicability of Thermal Parameter-Based Porosity Criteria to Long-Freezing Range Aluminum Alloys	399
Hogan, L.M.; Shamsuzzoha, M.; Berry, J.T. Growth Crystallography of Eutectic Phases in Unmodified Al-Si Casting Alloys	619
Hoopes, J.A.; Bradley F.J.; Kannan, S.; Balakrishna, J.V.; Heinemann, S. A Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems	917
Hornby-Anderson, S.A.; Bermel, C.L. Electric Arc Furnace Bottom Stirring: A Look at Technologies and Benefits	147
Hou, T.X.; Pehlke, R.D.; Wilkes, J.O. FEM Simulator for Efficient Casting Solidification Modeling	1057

Hoyt, D.F.; Dziekonski, P.E. Reactivity Measurement of Acid Soluble Materials in Foundry Sand and Its Relationship to Performance of Some Chemical Binder Systems	469
Hsieh, C.S.; Shih, T.S.; Kao, F.Y. Determination of Clay Consumption by Geometric Modeling	631
Huang, H.; Suri, V.K.; Berry, J.T.; Hill, J.L. Applicability of Thermal Parameter-Based Porosity Criteria to Long-Freezing Range Aluminum Alloys	399
Hwang, W.-S.; Jong, S.-H. Measurement and Visualization of the Filling Pattern of Molten Metal in Actual Industrial Castings	489
Hwang, W.-S.; Jong, S.-H. Study of Functional Relationship of Fraction of Solid with Temperature in Mushy Range for A356 Al Alloy	939

I

Itamura, M.; Yamamoto, N.; Ueno, T. Effects of Squeeze Casting Process on Mechanical Properties of Aluminum Diecasting Alloy	539
Iyer, S.R.; Ward, W. Bonding Properties of Core Process Binders on Reclaimed Spent Sands Containing Bentonite	743
Iyer, S.R.; Weaver, C. Bonding Properties of Reclaimed System Sand and Their Effect on Casting Quality	733
Iyer, S.R.; Trikha, S.K. New Developments in Ester-Cured Phenolic Nobake Binder Systems	183

J

Jacob, S.; Garat, M.; Laslaz, G.; Meyer, P.; Guerin, P.H.; Adam, R. State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys	821
Jain, K.B.; Mahanti, R.K.; Lal, K.; Sivaramakrishnan, C.S.; Mohanty, O.N. Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys	857
Jeanneret, J.L.; Cochran, B.P.; Fenyés, M.L.; Mulac, R.P.; Crepeau, P.N. Flux Practice in Aluminum Melting	737
Jen, K.-P.; Wu, J.; Kim, S. Study of Fracture and Fatigue Behavior of Austempered Ductile Iron	833
Jin, X.; Xiaogan, H.; Wenqing, W.; Xuqi, D.; Yaoke, W. Nodular Iron Surface Deterioration Due to PTSA in Resin	9
Johnson, C.K.; Armbruster, D.R.; Cooke, R.C. Proper Gassing of Ester-Cured Phenolic Coldbox Cores and Molds	483
Jonason, P. Thermal Fatigue of Cylinder Head Alloys	601
Jong, S.-H.; Hwang, W.-S. Measurement and Visualization of the Filling Pattern of Molten Metal in Actual Industrial Castings	489
Jong, S.-H.; Hwang, W.-S. Study of Functional Relationship of Fraction of Solid with Temperature in Mushy Range for A356 Al Alloy	939

K

Kallien, L.H.; Hartmann, G.C. Determination of Critical Solidification Times in Ductile Iron Castings	719
Kallien, L.H.; Sturm, J.C.; Odor, F.; Bellity, P. Optimization of Casting Process through Simulation for Aluminum Castings	1067
Kannan, S.; Bradley F.J.; Hoopes, J.A.; Balakrishna, J.V.; Heinemann, S. A Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems	917
Kannatey-Asibu, Jr., E.; Purvis, A.L.; Pehlke, R.D. Numerical Simulation of Solidification and Thermal Stresses During Solidification of a Restrained Bar Test Casting	593
Kao, F.Y.; Shih, T.S.; Hsieh, C.S. Determination of Clay Consumption by Geometric Modeling	631
Karamon, R.J.; Friesel, A.; Aubrey, L.S. Filtration of High-Alloy, Corrosion-Resistant and Nickel-Base Valve Body Castings	209
Kaptay, G.; Stefanescu, D.M. Theoretical Analysis of the Effect of Oxygen on the Penetration Factor in the Iron/Silica System	707
Kapturkiewicz, W.; Fras, E.; Lopez, H.F. Macro and Micro Modeling of the Solidification Kinetics of Castings	583
Katz, S.; Stanek, V.; Szekely, J.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part II: Computed Profiles and Discussion of Intrinsic Parameters	439
Katz, S.; Stanek, V.; Szekely, J.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part III: Effect of Operating Conditions on cupola Performance	447
Katz, S.; Stanek, V.; Szekely, J.; Sahajwalla, V.; Pehlke, R.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
Kim, J.H.; Lim, I.C.; Yang, H.; Meyers, C.W. Comparison of Four Different Latent Heat Models During the Phase-Change Process	947
Kim, J.H.; Lim, I.C.; Meyers, C.W. Numerical Studies of Heat Line Formation During the Roll Casting Process	955
Kim, J.H.; Lim, I.C.; Meyers, C.W. Simulation of the Hazelett Process Using Nonuniform Grid	1043
Kim, S.; Jen, K.-P.; Wu, J. Study of Fracture and Fatigue Behavior of Austempered Ductile Iron	833
Klingler, J.W.; Andrews, L.T.; Schindler, J.A.; Begeman, M.S.; Faron, D.R.; Vaughan, B.J.; Riggs, D.O.; Thomas, R.M. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
Kovacks, B.; Bartosiewicz, L.; Krause, A.R.; Putatunda, S.K. Fatigue Crack Growth Behavior of Austempered Ductile Cast Iron	135
Krause, A.R.; Bartosiewicz, L.; Kovacks, B.; Putatunda, S.K. Fatigue Crack Growth Behavior of Austempered Ductile Cast Iron	135
Krejci, J.; Genest, D.; Malavsky, N. The Coordinate Measuring Machine (CMM): New Technology for Foundry Tooling	609

Krishnaraj, D.; Narasimhan, H.N.L.; Seshan, S. Structure and Properties of ADI as Affected by Low Alloy Additions	105
Krysiak, M.B.; Carey, P.R.; Granlund, M.J. Measurement of Core and Mold Quality Using a Mold Quality Indicator	37
Kulkarni, A.; Stone, G.A. Casting Defect Analysis Expert System	881

L

Labib, A.; Liu, H.; Samuel, F.H. Effect of Remelting, Casting and Heat Treatment on Two Al-Si Sic-Particle Composites	1033
Lacroix, R.J.; Sahoo, M.; Newcombe, P.; Gracia, B. Influence of C, Si and Nb on the Structure and Mechanical Properties of Cast Monels	239
Large, P.; Laty, P. SIMULOR: 3-D Numerical Simulation for Defect Prediction	1097
Lal, K.; Mahanti, R.K.; Sivaramakrishnan, C.S.; Mohanty, O.N.; Jain, K.B. Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys	857
Landefeld, C.; Stanek, V.; Szekely, J.; Katz, S. Mathematical Model of a Cupola Furnace—Part II: Computed Profiles and Discussion of Intrinsic Parameters	439
Landefeld, C.; Stanek, V.; Szekely, J.; Katz, S. Mathematical Model of a Cupola Furnace—Part III: Effect of Operating Conditions on cupola Performance	447
Landefeld, C.; Stanek, V.; Szekely, J.; Sahajwalla, V.; Pehlke, R.; Katz, S. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
LaOrchan, W.; Gruzleski, J.E. Grain Refinement, Modification and Melt Hydrogen— Their Effects on Microporosity, Shrinkage and Impact Properties in A356 Alloy	415
Laslaz, G.; Garat, M.; Jacob, S.; Meyer, P.; Guerin, P.H.; Adam, R. State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys	821
Laty, P.; Large, P. SIMULOR: 3-D Numerical Simulation for Defect Prediction	1097
Laurent, V.; Rigaut, C. Experimental and Numerical Study of Criteria Functions for Predicting Microporosity in Cast Aluminum Alloys	647
Lawrenz, D. Modern Oxygen and Nitrogen Instruments Used in the Metals Industry	143
Leidel, D.S.; Simmons, C.W. The Universal Sand Reclaimer: Eight Years of Foundry Experience in Processing Furan and ECP Bonded Sand	725
Lepoutre, E.; Mazzei, M.; Taccone, C. A New Generation of Rotary Furnaces for Iron Melting and Holding	377
Li, B.Q.; Stanek, V.; Szekely, J. Mathematical Model of a Cupola Furnace—Part I: Formulation and an Algorithm to Solve the Model	425
Li, R.D.; Ding, H.; Chen, H.X. Antimony-Containing Medium-Manganese Cast Steel	221
Li, S.; Guichelaar, P.J.; Shaw, M.L.; Frederick, P.S.; Smart, R.H. Pyrolysis-Related Artifacts in EPC Ductile Iron	57
Li, Q.; Xu, D.; Pehlke, R.D. Melting Interface Morphology of Al-4%Cu, Eutectic Al-Cu and Al-Si Alloys	961
Lim, I.C.; Kim, J.H.; Yang, H.; Meyers, C.W. Comparison of Four Different Latent Heat Models During the Phase-Change Process	947
Lim, I.C.; Kim, J.H.; Meyers, C.W. Numerical Studies of Heat Line Formation During the Roll Casting Process	955
Lim, I.C.; Kim, J.H.; Meyers, C.W. Simulation of the Hazelett Process Using Nonuniform Grid	1043
Littleton, H.E.; Bates, C.E.; Griffin, J. Accuracy and Precision of Iron and Aluminum Castings Made by EPC, Nobake and Green Sand Methods	323
Liu, H.; Labib, A.; Samuel, F.H. Effect of Remelting, Casting and Heat Treatment on Two Al-Si Sic-Particle Composites	1033
Liu, S.L.; Loper, Jr., C.R.; Witter, T.H. The Role of Graphitic Inoculants in Ductile Iron	899
Lively, D.M. Measurement System Analysis and Control	855
Lobenhofer, R.W.; Goodrich, G.M.; Murchie, B.T.; Tuggle, C.L. Reproducibility of Mechanical Property Measurements in Ductile Iron	1025
Loper, Jr., C.R. Developing into the Future	907
Loper, Jr., C.R.; Fang, L.-Y. Development of a High Modulus Graphitic Cast Alloy	969
Loper, Jr., C.R. Fluidity of Aluminum-Silicon Casting Alloys	533
Loper, Jr., C.R.; Liu, S.L.; Witter, T.H. Role of Graphitic Inoculants in Ductile Iron, The	899
Lopez, H.F.; Fras, E.; Kapturkiewicz, W. Macro and Micro Modeling of the Solidification Kinetics of Castings	583
Louchez, P.; Fortin, G.; Samuel, F.H. Factors Controlling Heat Transfer Coefficient at the Metal-Mold Interface During Solidification of Aluminum Alloys: An Analytical Study	863
Lowry, J.A. Aluminum Bronze Total-Cost Analysis	467
Luo, A.; Meng, S. A Water-Soluble Sand Core for Steel Castings: Development and Characterization	123

M

Madheswaran, D.; Narayan-Prabhu, K.; Prasanna-Kumar, T.S.; Venkataraman, N. Computer Modeling of Heat Flow and Microstructure Fineness in Chill-Cast Aluminum Alloy LM-24	611
Mahanti, R.K.; Lal, K.; Sivaramakrishnan, C.S.; Mohanty, O.N.; Jain, K.B. Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys	857
Malavsky, N.; Krejci, J.; Genest, D. The Coordinate Measuring Machine (CMM): New Technology for Foundry Tooling	609
Maloit, A.F.; Oswalt, K.J. Correlation of Notch Yield Ratio and Fracture Toughness of B201 Al Casting Alloy	697

Matte, R.A.; Fasoyinu, F.A.; Dion, J.L.; Cousineau, D.; Davis, K.G.; Sahoo, M. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Mazzei, M.; Lepoutre, E.; Taccone, C. A New Generation of Rotary Furnaces for Iron Melting and Holding	377
McIntyre, S.W.; Rundman, K.B.; Bailod, C.R.; Rush, P.; Sandell, J.; Stillwell, B. Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report	201
Meng, S.; Luo, A. A Water-Soluble Sand Core for Steel Castings: Development and Characterization	123
Merlin, P.; Whiting, L.V. Central Sand Laundry Economics	1049
Meyer, P.; Garat, M.; Laslaz, G.; Jacob, S.; Guerin, P.H.; Adam, R. State-of-the-Art Use of Sb-, Na- and Sr-Modified Al-Si Casting Alloys	821
Meyers, C.W.; Kim, J.H.; Lim, I.C.; Yang, H. Comparison of Four Different Latent Heat Models During the Phase-Change Process	947
Meyers, C.W.; Kim, J.H.; Lim, I.C. Numerical Studies of Heat Line Formation During the Roll Casting Process	955
Meyers, C.W.; Kim, J.H.; Lim, I.C. Simulation of the Hazlett Process Using Nonuniform Grid	1043
Mohanty, O.N.; Mahanti, R.K.; Lal, K.; Sivaramakrishnan, C.S.; Jain, K.B. Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys	857
Moore, D.J.; Hayrynen, K.L.; Rundman, K.B. Tensile and Fatigue Properties of Relatively Pure ADI	93
Mulac, R.P.; Cochran, B.P.; Fenyes, M.L.; Jeanneret, J.L.; Crepeau, P.N. Flux Practice in Aluminum Melting	737
Murchie, B.T.; Goodrich, G.M.; Lobenhofer, R.W.; Tuggle, C.L. Reproducibility of Mechanical Property Measurements in Ductile Iron	1025
Muthukumarasamy, S.; Seshan, S. Corrosion and Corrosion-Fatigue of Ductile Irons	873

N

Narasimhan, H.N.L.; Krishnaraj, D.; Seshan, S. Structure and Properties of ADI as Affected by Low Alloy Additions	105
Narayan-Prabhu, K.; Madheswaran, D.; Prasanna-Kumar, T.S.; Venkataraman, N. Computer Modeling of Heat Flow and Microstructure Fineness in Chill-Cast Aluminum Alloy LM-24	611
Naro, R.L.; Wallace, J.F. Effect of Mold-Steel Interface Reactions on Casting Surfaces	797
Nath, D.; Rohatgi, P.K.; Ray, S.; Church, N.; Peters, D. Cast Lead-Free Copper-Graphite Composite Alloys With Improved Machinability	1
Newcombe, P.; Sahoo, M.; Lacroix, R.J.; Gracia, B. Influence of C, Si and Nb on the Structure and Mechanical Properties of Cast Monels	239
Novosel-Radovic, V.; Grozdanic, V.; Dmitrovic, R. Contribution to the Research of Hot Tears in Steel Castings	265

O

Odom, I.E. Chemical and Physical Factors That Influence MB Analysis of Bentonites and System Sands	313
Odor, F.; Kallien, L.H.; Sturm, J.C.; Bellity, P. Optimization of Casting Process through Simulation for Aluminum Castings	1067
Oswalt, K.J.; Maloit, A.F. Correlation of Notch Yield Ratio and Fracture Toughness of B201 Al Casting Alloy	697

P

Paul, A.J.; Upadhyay, G. Comprehensive Casting Analysis Model Using a Geometry-Based Technique Followed by Fully Coupled, 3-D Fluid Flow, Heat Transfer and Solidification Kinetics Calculations	925
Pehlke, R.D.; Sahajwalla, V. Experimental Investigation and Mathematical Modeling of Carbon Transport in a Cupola	343
Pehlke, R.D.; Hou, T.X.; Wilkes, J.O. FEM Simulator for Efficient Casting Solidification Modeling	1057
Pehlke, R.D.; Sun, H. Kinetics of Oxidation of Multicomponent Liquid Iron Alloys By Oxidizing Gases Using Levitation Melting	371
Pehlke, R.; Stanek, V.; Szekely, J.; Sahajwalla, V.; Landefeld, C.; Katz, S. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
Pehlke, R.D.; Xu, D.; Li, Q. Melting Interface Morphology of Al-4%Cu, Eutectic Al-Cu and Al-Si Alloys	961
Pehlke, R.D.; Purvis, A.L.; Kannatey-Asibu, Jr., E. Numerical Simulation of Solidification and Thermal Stresses During Solidification of a Restrained Bar Test Casting	593
Peters, D.; Rohatgi, P.K.; Ray, S.; Nath, D.; Church, N. Cast Lead-Free Copper-Graphite Composite Alloys With Improved Machinability	1
Peters, T.M.; Twarog, D.L. Feasibility of Reclaiming Shell Material from Investment Castings	1005
Phipps, L.W. CAD/CAM in the Small to Medium-Size Pattern Shop	121
Pilliod, C.F. Variables Affecting the Nitrogen Content of Carbon and Low-Alloy Acid Electric Arc Furnace Steels	23
Piwonka, T.S.; Giese, S.; Stefanescu, D.M.; Sen, S.; Dhindaw, B.K. An Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects: Phase II	785
Powell, W.L.; Duca, W.J. Updating an Induction Melt Shop: A Progress Report	639
Prasanna-Kumar, T.S.; Narayan-Prabhu, K.; Madheswaran, D.; Venkataraman, N. Computer Modeling of Heat Flow and Microstructure Fineness in Chill-Cast Aluminum Alloy LM-24	611
Purvis, A.L.; Kannatey-Asibu, Jr., E.; Pehlke, R.D. Numerical Simulation of Solidification and Thermal Stresses During Solidification of a Restrained Bar Test Casting	593

Putatunda, S.K.; Bartosiewicz, L.; Krause, A.R.; Kovacks, B. Fatigue Crack Growth Behavior of Austempered Ductile Cast Iron	135
-----------------------------------------------------------------------------------------------------------------------------------------	-----

R

Radhakrishna, K.; Seshan, S. Controlling DAS in Aluminum Alloy Castings Using Chills	667
Ray, S.; Rohatgi, P.K.; Nath, D.; Church, N.; Peters, D. Cast Lead-Free Copper-Graphite Composite Alloys With Improved Machinability	1
Ray, S.; Yarandi, F.M.; Rohatgi, P.K. Casting Fluidity of Aluminum A356-SiC Cast Particulate Composite	575
Rigaut, C.; Laurent, V. Experimental and Numerical Study of Criteria Functions for Predicting Microporosity in Cast Aluminum Alloys	647
Riggs, D.O.; Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Begeman, M.S.; Faron, D.R.; Vaughan, B.J.; Thomas, R.M. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
Rohatgi, P.K.; Ray, S.; Nath, D.; Church, N.; Peters, D. Cast Lead-Free Copper-Graphite Composite Alloys With Improved Machinability	1
Rohatgi, P.K.; Yarandi, F.M.; Ray, S. Casting Fluidity of Aluminum A356-SiC Cast Particulate Composite	575
Roshan, H.M.; Sriram, P.; Seshan, S. Effect of Trace Elements on Casting Characteristics and Mechanical Properties of Cast ZA Alloys	769
Rundman, K.B.; McIntyre, S.W.; Bailod, C.R.; Rush, P.; Sandell, J.; Stillwell, B. Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report	201
Rundman, K.B.; Gugel, M.D. Development of an As-Cast Age-Hardenable Cu-Ni-Sn Alloy	113
Rundman, K.B.; Hayrynen, K.L.; Moore, D.J. Tensile and Fatigue Properties of Relatively Pure ADI	93
Runyoro, J.; Boutorabi, S.M.A.; Campbell, J. Critical Gate Velocities for Film-Forming Casting Alloys: A Basis for Process Specification	225
Rush, P.; McIntyre, S.W.; Rundman, K.B.; Bailod, C.R.; Sandell, J.; Stillwell, B. Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report	201
Sage, A.M.; Dawson, J.V. A High-Carbon, V-Mo, High-Strength Gray Cast Iron for Castings Subjected to Thermal Fatigue	253
Sahajwalla, V.; Pehlke, R.D. Experimental Investigation and Mathematical Modeling of Carbon Transport in a Cupola	343
Sahajwalla, V.; Stanek, V.; Szekely, J.; Pehlke, R.; Landefeld, C.; Katz, S. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
Sahoo, M.; Fasoyinu, F.A.; Dion, J.; Davé, K. Comparison of Mechanical Properties of Cu-Base Alloys in ASTM and ISO Permanent Test Bar Molds	73
Sahoo, M.; Fasoyinu, F.A.; Dion, J.L.; Cousineau, D.; Matte, R.A.; Davis, K.G. Fluidity of Permanent Mold Cast Copper-Base Alloys	547
Sahoo, M.; Lacroix, R.J.; Newcombe, P.; Gracia, B. Influence of C, Si and Nb on the Structure and Mechanical Properties of Cast Monels	239
Samuel, A.M.; Samuel, F.H. Porosity Factor in Quality Aluminum Castings	657
Samuel, F.H.; Labib, A.; Liu, H. Effect of Remelting, Casting and Heat Treatment on Two Al-Si Sic-Particle Composites	1033
Samuel, F.H.; Fortin, G.; Louchez, P. Factors Controlling Heat Transfer Coefficient at the Metal-Mold Interface During Solidification of Aluminum Alloys: An Analytical Study	863
Samuel, F.H.; Samuel, A.M. Porosity Factor in Quality Aluminum Castings	657
Samuel, F.H.; Ananthanarayanan, L.; Gruzleski, J.E. Thermal Analysis Studies on the Effect of Cooling Rate on the Microstructure of 319 Aluminum Alloy	383
Sandell, J.; McIntyre, S.W.; Rundman, K.B.; Bailod, C.R.; Rush, P.; Stillwell, B. Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report	201
Schindler, J.A.; Andrews, L.T.; Klingler, J.W.; Begeman, M.S.; Faron, D.R.; Vaughan, B.J.; Riggs, D.O.; Thomas, R.M. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
Sen, S.; Giese, S.; Stefanescu, D.M.; Piwonka, T.S.; Dhindaw, B.K. An Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects: Phase II	785
Seshan, S.; Radhakrishna, K. Controlling DAS in Aluminum Alloy Castings Using Chills	667
Seshan, S.; Muthukumarasamy, S. Corrosion and Corrosion-Fatigue of Ductile Irons	873
Seshan, S.; Sriram, P.; Roshan, H.M. Effect of Trace Elements on Casting Characteristics and Mechanical Properties of Cast ZA Alloys	769
Seshan, S.; Krishnaraj, D.; Narasimhan, H.N.L. Structure and Properties of ADI as Affected by Low Alloy Additions	105
Seshan, S.; Chandrappa, K.G. Studies on Ester Binders and Ester- Hardened Molding Sands	363
Shamsuzzoha, M.; Hogan, L.M.; Berry, J.T. Growth Crystallography of Eutectic Phases in Unmodified Al-Si Casting Alloys	619
Shaw, M.L.; Guichelaar, P.J.; Li, S.; Frederick, P.S.; Smart, R.H. Pyrolysis-Related Artifacts in EPC Ductile Iron	57
Shih, T.S.; Hsieh, C.S.; Kao, F.Y. Determination of Clay Consumption by Geometric Modeling	631
Shivani, A.; Bansal, V. A Model Study of Treatment Inside the Mold	179
Sigworth, G.K.; Wang, C. Evolution of Porosity During Solidification, Part 1: A Literature Review	979
Sigworth, G.K.; Wang, C. Evolution of Porosity During Solidification, Part 2: A Theoretical Analysis	989
Simmons, C.W.; Leidel, D.S. The Universal Sand Reclaimer: Eight Years of Foundry Experience in Processing Furan and ECP Bonded Sand	725

Sivaramakrishnan, C.S.; Mahanti, R.K.; Lal, K.; Mohanty, O.N.; Jain, K.B. Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys	857
Smart, R.H.; Guichelaar, P.J.; Li, S.; Shaw, M.L.; Frederick, P.S. Pyrolysis-Related Artifacts in EPC Ductile Iron	57
Srinivasan, M.N.; Chundu, S.N.; Bray, D.E.; Alagarsamy, A. Detection of Stresses in Ductile Iron Bars Using L_{CR} Wave Technique	309
Sriram, P.; Seshan, S.; Roshan, H.Md. Effect of Trace Elements on Casting Characteristics and Mechanical Properties of Cast ZA Alloys	769
Stahura, R.P. Keeping Conveyor Efficiency on Track: Systems to Control, Monitor and Stabilize Belt Conveyors	393
Stanek, V.; Li, B.Q.; Szekely, J. Mathematical Model of a Cupola Furnace—Part I: Formulation and an Algorithm to Solve the Model	425
Stanek, V.; Szekely, J.; Katz, S.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part II: Computed Profiles and Discussion of Intrinsic Parameters	439
Stanek, V.; Szekely, J.; Katz, S.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part III: Effect of Operating Conditions on cupola Performance	447
Stanek, V.; Szekely, J.; Sahajwalla, V.; Pehlke, R.; Landefeld, C.; Katz, S. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
Stefanescu, D.M.; Giese, S.; Piwonka, T.S.; Sen, S.; Dhindaw, B.K. An Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects: Phase II	785
Stefanescu, D.M.; Guo, X. Directional Solidification of Al-Base/SiC Particle Metal Matrix Composite Castings	273
Stefanescu, D.M.; Frost, J.M. Melt Quality Assessment of SG Iron Through Computer-Aided Cooling Curve Analysis	189
Stefanescu, D.M.; Kaptay, G. Theoretical Analysis of the Effect of Oxygen on the Penetration Factor in the Iron/Silica System	707
Stillwell, B.; McIntyre, S.W.; Rundman, K.B.; Bailod, C.R.; Rush, P.; Sandell, J. Beneficiation and Reuse of Foundry Sand Residuals: A Preliminary Report	201
Stone, G.A.; Kulkarni, A. Casting Defect Analysis Expert System	881
Sturm, J.C.; Kallien, L.H.; Odor, F.; Bellity, P. Optimization of Casting Process through Simulation for Aluminum Castings	1067
Sully, L.J.D.; Vaughan, B.J.; Faron, D.R. Porosity Characterization by Industrial Volumetric Computed Tomography	281
Sun, H.; Pehlke, R.D. Kinetics of Oxidation of Multicomponent Liquid Iron Alloys By Oxidizing Gases Using Levitation Melting	371
Sun, Y.; Tsai, H.-L.; Askeland, D.R. Investigation of Wetting and Wicking Properties of Refractory Coating in the EPC Process	297
Suri, V.K.; Huang, H.; Berry, J.T.; Hill, J.L. Applicability of Thermal Parameter-Based Porosity Criteria to Long-Freezing Range Aluminum Alloys	399
Svoboda, J.M. Energy Conservation in the Steel Foundry	173

Szekely, J.; Stanek, V.; Li, B.Q. Mathematical Model of a Cupola Furnace—Part I: Formulation and an Algorithm to Solve the Model	425
Szekely, J.; Stanek, V.; Katz, S.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part II: Computed Profiles and Discussion of Intrinsic Parameters	439
Szekely, J.; Stanek, V.; Katz, S.; Landefeld, C. Mathematical Model of a Cupola Furnace—Part III: Effect of Operating Conditions on cupola Performance	447
Szekely, J.; Stanek, V.; Sahajwalla, V.; Pehlke, R.; Landefeld, C.; Katz, S. Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459

T

Taccone, C.; Lepoutre, E.; Mazzei, M. A New Generation of Rotary Furnaces for Iron Melting and Holding	377
Thomas, R.M.; Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Begeman, M.S.; Faron, D.R.; Vaughan, B.J.; Riggs, D.O. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
Trikha, S.K.; Iyer, S.R. New Developments in Ester-Cured Phenolic Nobake Binder Systems	183
Tsai, H.-L.; Sun, Y.; Askeland, D.R. Investigation of Wetting and Wicking Properties of Refractory Coating in the EPC Process	297
Tseng, C.-H.E.; Askeland, D.R. Study of the EPC Mold Filling Process Using Metal Velocity and Mass and Energy Balances	519
Tseng, C.-H.E.; Askeland, D.R. Thermal and Chemical Analysis of the Foam, Refractory Coating and Sand in the EPC Process	509
Tuggle, C.L.; Goodrich, G.M.; Lobenhofer, R.W.; Murchie, B.T. Reproducibility of Mechanical Property Measurements in Ductile Iron	1025
Turpin, P.D.; Dudzik, B.E. Storm Water Regulation Compliance by Foundries	935
Twarog, D.L.; Peters, T.M. Feasibility of Reclaiming Shell Material from Investment Castings	1005

U

Ueno, T.; Yamamoto, N.; Itamura, M. Effects of Squeeze Casting Process on Mechanical Properties of Aluminum Diecasting Alloy	539
Upadhy, G.; Paul, A.J. Comprehensive Casting Analysis Model Using a Geometry-Based Technique Followed by Fully Coupled, 3-D Fluid Flow, Heat Transfer and Solidification Kinetics Calculations	925

V

Vaughan, B.J.; Andrews, L.T.; Klingler, J.W.; Schindler, J.A.; Begeman, M.S.; Faron, D.R.; Riggs, D.O.; Thomas, R.M. Detection and Visualization of Porosity in Volumetric CT Scans of Aluminum Die Castings	289
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

Vaughan, B.J.; Faron, D.R.; Sully, L.J.D. Porosity Characterization by Industrial Volumetric Computed Tomography	281
Venkataraman, N.; Narayan-Prabhu, K.; Madheswaran, D.; Prasanna-Kumar, T.S. Computer Modeling of Heat Flow and Microstructure Fineness in Chill-Cast Aluminum Alloy LM-24	611
Venugopalan, D.; Alagarsamy, A. Factors Affecting Fatigue Strength of Commercial Ductile Iron Castings	337
Vigodner, L.F. Directional Solidification of Steel Castings	409
Viswanathan, S.; Brody, H.D. Microporosity in Grain-Refined Aluminum-4.5% Copper Alloys and Its Relation to Casting Practice	685

W

Wallace, J.F.; Naro, R.L. Effect of Mold-Steel Interface Reactions on Casting Surfaces	797
Wang, C.; Sigworth, G.K. Evolution of Porosity During Solidification, Part 1: A Literature Review	979
Wang, C.; Sigworth, G.K. Evolution of Porosity During Solidification, Part 2: A Theoretical Analysis	989
Wang, Y.X.; Wu, M.H.; Guo, T.; Zhang, Q.X. Computer-Aided Chill Design for Steel Castings	27
Ward, W.; Iyer, S.R. Bonding Properties of Core Process Binders on Reclaimed Spent Sands Containing Bentonite	743
Weaver, C.; Iyer, S.R. Bonding Properties of Reclaimed System Sand and Their Effect on Casting Quality	733
Weimin, X.; Fuli, Z.; Entao, Z.; Daxin, S. Application of DSM-2 Software on Pouring Process Design	1087
Wenqing, W.; Xiaogan, H.; Jin, X.; Xuqi, D.; Yaoke, W. Nodular Iron Surface Deterioration Due to PTSA in Resin	9
Whelan, E.P.; Gundlach, R.B. Critical Temperatures in Ferritic Ductile Irons	713
Whiting, L.V.; Merlin, P. Central Sand Laundry Economics	1049
Wilkes, J.O.; Hou, T.X.; Pehlke, R.D. FEM Simulator for Efficient Casting Solidification Modeling ...	1057
Witter, T.H.; Liu, S.L.; Loper, Jr., C.R. The Role of Graphitic Inoculants in Ductile Iron	899

Wu, J.; Jen, K.-P.; Kim, S. Study of Fracture and Fatigue Behavior of Austempered Ductile Iron	833
Wu, M.H.; Wang, Y.X.; Guo, T.; Zhang, Q.X. Computer-Aided Chill Design for Steel Castings	27
Wyman, K.A.; Brevick, J.R. Effects of Vacuum Assist in High-Pressure, Horizontal, Cold-Chamber Diecasting	529

X

Xiaogan, H.; Jin, X.; Wenqing, W.; Xuqi, D.; Yaoke, W. Nodular Iron Surface Deterioration Due to PTSA in Resin	9
Xing, J.D.; Zhou, Q.D. Influence of Carbon Content on Oxidation and Wear Resistance of Fe-20%Cr Alloy at Elevated Temperatures	17
Xu, D.; Pehlke, R.D.; Li, Q. Melting Interface Morphology of Al-4%Cu, Eutectic Al-Cu and Al-Si Alloys	961
Xuqi, D.; Xiaogan, H.; Jin, X.; Wenqing, W.; Yaoke, W. Nodular Iron Surface Deterioration Due to PTSA in Resin	9

Y

Yamamoto, N.; Itamura, M.; Ueno, T. Effects of Squeeze Casting Process on Mechanical Properties of Aluminum Diecasting Alloy	539
Yang, H.; Kim, J.H.; Lim, I.C.; Meyers, C.W. Comparison of Four Different Latent Heat Models During the Phase-Change Process	947
Yang, Y.; Alhainen, J. Quantitative Study on the Shrinkage Behavior of SG Iron with Derivative Dilatation Analysis	129
Yaoke, W.; Xiaogan, H.; Jin, X.; Wenqing, W.; Xuqi, D. Nodular Iron Surface Deterioration Due to PTSA in Resin	9
Yarandi, F.M.; Rohatgi, P.K.; Ray, S. Casting Fluidity of Aluminum A356-SiC Cast Particulate Composite	575

Z

Zhang, Q.X.; Wu, M.H.; Wang, Y.X.; Guo, T. Computer-Aided Chill Design for Steel Castings	27
Zhou, Q.D.; Xing, J.D. Influence of Carbon Content on Oxidation and Wear Resistance of Fe-20%Cr Alloy at Elevated Temperatures	17

Subject Index

A

Acid demand value (ADV)	
measuring reactivity levels of acid reactive materials in sand	469
Acoustic emissions generated during solidification	593
Age hardening in as-cast copper-base alloys	113
Air-setting binder development for steel casting	801
Alternate uses for foundry waste	201
Aluminum and aluminum alloys	
accuracy of EPC vs. nobake and green sand casting	323
controlling DAS using chills	667
crystallography of eutectic phases in Al-Si alloys	619
deoxidizing effect of Al on steel	568
effect of cooling rate on microstructure of B319	383
effect on fluidity of copper-base alloys	551
factors affecting Sr modification with master alloys	847
fluidity of A356-SiC	575
fluidity of Al-Si alloys	533
fluxing practice in Al melting	737
grain refinement and modification effects on A356	415
heat transfer coefficient during Al solidification	863
melting interface morphology of Al-Cu and Al-Si alloys	961
microporosity in grain-refined Al-4.5% Cu castings	685
numerical simulation of latent heat release	947
notch yield ratio vs. fracture toughness of B201	697
optimization of casting process through simulation	1067
porosity characterization in die castings using volumetric CT	281
porosity detection in die castings using volumetric CT	289
porosity problems in Al casting	657
predicting microporosity in A356	399, 647
progress made in modification in the last 25 years	673
recycling and contamination of modified alloys	830
squeeze casting effects on mechanical properties	539
thermal fatigue of cylinder head alloys	601
uses for modified Al-Si castings	821
Aluminum bronze	
comparison of mechanical properties in test bars	73
total-cost analysis	467
Antimony	
in medium-manganese cast steel	221
uses for modified Al-Si castings	821
Argon used in bottom stirring in EAFs	151
As-cast condition	
austempered ductile iron	137
copper-base alloys	115
squeeze cast Al alloy	540
tensile properties of MMCs in	1037
ASTM standards	
compared to ISO standards for copper-base alloys	73
compared to test results for ADI	101
for measuring nitrogen and oxygen content	143
for fatigue threshold in ADI	135
Austempered ductile iron (ADI)	
effect of low alloy additions on structure and properties	105
fatigue crack growth behavior	135
fracture and fatigue behavior	833
heat treated and as-cast microstructures	136
tensile and fatigue properties of	93

B

Bainitic transformation in ADI	105
Bentonites	
effect on green sand properties	793
in reclaimed or reused sands	743
MB analysis	313
properties of green sand with mixtures of bentonites	499
Blastcleaning	
wear performance of blades in centrifugal blasting machines	887
Blast rate and temperature effects on cupola performance	451
Bottom stirring in EAFs	151
Brasses	
comparison of mechanical properties in test bars	73

C

Carbon	
carbon pickup in the cupola	459
effect of content on Fe-20% Cr alloy	17
influence on structure and properties of monels	239
modeling of behavior in a cupola	343
Carbon equivalent (CE)	
development of a high modulus, low CE alloy	969
Carbon steels	
factors affecting nitrogen content in	23
Centerline shrinkage	
in copper-base permanent mold test bars	76
in Mg modification of ductile iron	235
Ceramic foam filters for high-alloy, corrosion resistant	
and nickel-base castings	209
Chills	
computer modeling of heat transfer in Al alloy	611
effects on porosity in Al castings	661
using computers to design for steel castings	27
using to control DAS in Al alloys	667
Clay	
determining clay consumption by geometric modeling	631
MB adsorption by clay minerals	314
CNC machining in the small to medium-size pattern shop	121
Coatings	
mold coatings as deterioration remedy	14
mold coatings for copper-base permanent test bar molds	73
wetting and wicking of EPC refractory coatings	297
Composites	
directional solidification in MMCs	273
effect of remelting, casting and heat treatment on MMCs	1033
fluidity of A356-SiC cast particulate composite	575
graphite-reinforced copper	1
Computer applications	
CAD for designing pouring process for large steel castings	1087
CAD/CAM for measuring filling patterns of molten metal	489
CAD/CAM for patternmaking	121
CMM measuring of EPC castings	326
CMM production of foundry tooling	609
CNC machining of patterns	121
computer-aided chill design for steel castings	27

computer-aided cooling curve analysis for Al alloy A356	939	centerline shrinkage in copper-base permanent mold test bars	76
designing gating systems for vertically parted molds	765	effect of sand-metal contact angle on penetration defects	785
expert systems for casting defect analysis	881	effects on fatigue strength of ductile iron	337
FEM simulator for solidification modeling	1057	expert systems for defect analysis	881
melt quality analysis in SG iron	189	gating techniques to minimize	225
modeling heat flow and microstructure of Al alloy	611	hot tears in steel castings	265
modeling of fluid flow in horizontal gating systems	917	in EPC ductile iron castings	57
modeling of solidification kinetics	583	lustrous carbon surface defects in steel castings	799
modeling to determine velocity loss in EPC	521	numerical simulation to determine causes of hot tears	593
numerical simulation		penetration defects in iron	707
latent heat release models	947	surface deterioration in nodular iron	9
of Hazelett process for continuous casting	1043	3-D numerical model for defect prediction	925, 1079
of roll casting process to study heat line formation	955	Degassing effects on microporosity in Al alloy A356	418
of solidification and thermal stresses	593	Dendrite arm spacing (DAS)	
3-D numerical model for defect prediction	925, 1079	effect of cooling rate on in Al alloy B319	383
to determine solidification times and cooling rates in DI	719	using chills to control in Al alloys	667
to predict shrinkage in ductile iron	155	Density	
optimization of Al casting process through simulation	1067	determining in PUNB and FNB molds and cores	37
predicting microporosity in Al alloy A356	647	factors affecting core density in steel casting	807
solidification modeling for Al-4.5% Cu alloy	690	increasing in steel castings	412
volumetric CT	281, 289	measurement in Sr-treated Mg castings	356
Continuous casting (Hazelett process) simulation	1043	measuring to determine porosity in Al-4.5% Cu alloy	688
Conveyor operating cost reduction	393	Dezincification	2
Cooling curve analysis		Diecasting	
determining porosity in Al alloy A356	401	effects of vacuum assist in Al diecasting	529
computer-aided for Al alloy A356	939	porosity characterization using volumetric CT	281
computer-aided in SG iron	189	porosity detection using volumetric CT in Al castings	289
in determining shrinkage in ductile iron	161	squeeze casting effects on Al alloy A384	539
Cooling rate		Direct-current arc furnaces	176
effect on critical temperatures of ductile iron	718	Directional solidification	
effect on microstructure of Al alloy B319	383	behavior of SiC particles in MMC castings during	273
Coordinate measuring machine		effect of Sr on in Mg castings	357
for producing close-tolerance tooling	609	formation of porosity during solidification	989
measuring accuracy of EPC castings	326	of steel castings	409
Copper		techniques for investigating melting processes of Al alloys	961
influence on thermal fatigue resistance in gray iron	253	using computer-aided chill design for steel castings	27
used for alloying ADI	106	Dross formation in EPC ductile iron castings	57
Copper-base alloys		Ductile iron (DI). <i>See also:</i> Austempered ductile iron	
comparison of mechanical properties in test bars	73	corrosion and corrosion-fatigue of	873
development of an as-cast, age hardenable alloy	113	critical temperatures in ferritic DI	713
fluidity of permanent mold cast alloys	547	developments in ductile iron	907
lead-free, graphite-reinforced C90300	1	effect of graphitic inoculants on	899
improved machinability	1	fatigue properties in commercial castings	337
Coreless induction melting		Mg treatment in a modified tundish ladle	235
improving energy efficiency	571	numerical simulation	
in steel production	177	to determine solidification times and cooling rates	719
Cores		to predict shrinkage in	155
determining quality of using a mold quality indicator	37	pyrolysis-related artifacts in EPC castings	57
water-soluble sand core for steel castings	123	reproducibility of mechanical property measurements	1025
Corrosion and corrosion-fatigue of ductile irons	873	spheroidal graphite (SG)	
Crack growth rate		melt quality assessment using computers	189
in ADI	135	shrinkage behavior	129
in commercial ductile iron castings	339	surface deterioration in nodular iron	9
in fatigue testing of ADI	840	ultrasonic testing of stresses	309
Crystallography of Al-Si eutectic structure	620		
Cupola		E	
carbon content of charge material	343	Economics of a central sand reclamation facility	1049
carbon pickup, oxidation and heat losses	459	Electric arc furnace (EAF)	
effect of operating conditions on cupola performance	447	bottom stirring technology	147
mathematical modeling of the cupola process	425	nitrogen content of steels produced in acid EAFs	23
parameters of mathematical modeling	439	reducing energy use in steel foundries	174
refractory linings for	777	thermochemistry of acid arc melting of carbon cast steel	561
		Energy	
D		conservation in steel foundries	173
Decarburization rate affected by O ₂ content in liquid iron	372	improving efficiency in coreless induction melter	571
Defects. <i>See also specific type of defect</i>		Environmental concerns	
causing failure in pump impellers	63	for a universal sand reclaimers	729

in recycling modified Al alloys	831
safety, quality and environmental concerns in fluxing Al	741
storm water regulation compliance by foundries	935
using a rotary furnace to reduce emissions	379
Ester-cured phenolic binders	
bonding properties of reclaimed sand	733
developments in nobake binders	183
developments in nobake binders for steel casting	802
proper gassing of coldbox cores and molds	483
sand properties after reclamation	749
universal sand reclaimer for	725
Ester resins in sodium-silicate bonded sands	363
Evaporative pattern casting. See: Expendable pattern casting	
Exothermic risers for steel castings	411
Expandable polystyrene (EPS) patterns	
decomposition in EPC	519
thermal analysis of	509
used for EPC ductile iron castings	58
wetting and wicking of refractory coatings	297
Expendable pattern casting (EPC)	
analysis of foam, refractory coating and sand used	509
compared to nobake and green sand methods	323
pyrolysis-related artifacts in EPC ductile iron	57
measuring mold filling velocity	519
wetting and wicking properties of refractory coatings	297
Expert systems for casting defect analysis	881
F	
Failure analysis	
of ADI	840
of pump impellers	63
Failure of coils and steel bushings in induction melters	639
Fatigue	
causing failure in pump impellers	63
corrosion-fatigue of ductile iron	873
fatigue behavior in ADI	833
fatigue crack growth in ADI	135
fatigue properties in ADI	93
fatigue strength of ductile iron castings	337
strength and crack growth in squeeze cast aluminum	543
thermal fatigue of Al cylinder head alloys	601
thermal fatigue resistance in gray iron	253
Feeding	
requirements in SG iron	129
simulation in Al casting	1069
Filtration of molten metal	
high-alloy, corrosion resistant and nickel-base castings	209
Finite element method (FEM) for solidification modeling	1057
Fluidity	
effect of trace elements on in ZA alloys	771
of A356-SiC cast particulate composite	575
of Al-Si alloys	533
of MMCs	1034
of permanent mold cast copper-base alloys	547
Fluxes	
influence on properties of ZA alloys	857
used in Al melting	737
Fracture surfaces of ADI	833
Fracture toughness vs. notch yield ratio of Al alloy B201	697
Free radical cure (FRC) system sand properties after reclamation	747
Furan nobake (FNB) binders	
binder development for steel casting	801
bonding properties of reclaimed sand	733
PTSA causing surface deterioration in nodular iron	9
reactivity measurements of acid soluble materials in sand	469
universal sand reclaimer for	725
Furnace. See specific type of furnace	

G

Gage R&R	
to determine effectiveness of mold quality indicator	53
ultrasonic vs. boiling-ultrasonic for determining MB values	319
Gating	
development of procedures for ductile iron	910
gate velocity vs. casting section thickness	225
model of fluid flow in horizontal gating systems	917
pressurized/nonpressurized in vertically parted molds	761
runner system design in vertically parted molding	753
Gauge systems and their control	855
Grain refinement	
effect of cooling rate on in Al alloy B319	385
effect on fluidity of Al alloys	537
effect on porosity in Al castings	663
effect on properties of Al alloy A356	415
Grain size	
effect of cooling rate on in Al alloy B319	383
effect of Sr on in Mg castings	360
Graphite	
copper-graphite composite alloys	1
effect of alloying elements on graphite in gray iron	253
effect of graphitic inoculants on ductile iron	899
in EPC ductile iron castings	61
volume fraction in ADI	98
Graphitic expansion in SG irons	129
Gray iron	
effect of V and Mo on thermal fatigue properties of	253
Green sand	
accuracy of EPC vs. green sand casting	323
effect of engineered sodium bentonite on properties	793
properties of sand with mixtures of bentonites	499

H

Hastelloy C pump impeller failure analysis	68
Hazelett process (continuous casting) simulation	1043
Heat transfer	
between steel casting and chill in a sand mold	28
computer modeling in Al alloy	611
during solidification of Al alloys	536
heat transfer coefficient during Al solidification	863
in modeling solidification kinetics of iron	583
modeling for Al alloy A356	401
modeling for cupolas	425
numerical modeling of roll casting process	955
Heat treatment	
effect on crack growth rate in austempered ductile iron	139
effect on MMCs	1033
effect on squeeze cast Al alloy A384	541
reducing costs of in steel foundries	177
Hotbox binder sand properties after reclamation	745
Hot tears	
determining cause of using numerical simulation	593
in steel castings	265
tendency in ZA alloys	773
Hydraulics-based modeling of fluid flow in gating systems	917
Hydrogen	
effect on properties of Al alloy A356	415
forming porosity in Al alloys	657

I

Impact testing to determine porosity in Al alloy A356	421
Inclusions	
effects on fatigue strength of ductile iron	337

in EPC ductile iron castings	57
removal from nickel-base alloys using filtration	209
Induction melting equipment updating	639
Inert gas fusion techniques for measuring N ₂ and O ₂ content	143
Infrared absorption for detecting oxygen	143
Inoculation	
effect of graphitic inoculants on ductile iron	899
Mg treatment of ductile iron in a modified tundish ladle	235
treatment of liquid cast iron in the mold	179
Investment casting	
feasibility of reclaiming shell material	1005
finite element method (FEM) for solidification modeling	1061
Iron and iron alloys	
<i>See also:</i> austempered ductile iron; ductile iron; gray iron	
accuracy of EPC vs. nobake and green sand casting	323
development of a high modulus, low CE alloy	969
effect of carbon content on Fe-20% Cr alloy	17
formation of AlFeSi compound in Al alloy B319	389
modeling of solidification kinetics	583
numerical simulation of eutectic development	928
numerical simulation of latent heat release	947
oxidation of liquid iron	371
pyrolysis-related artifacts in EPC castings	57
Iron production	
carbon pickup, oxidation and heat losses in the cupola	459
effect of operating conditions on cupola performance	447
mathematical modeling of cupola operation	425
parameters for mathematical modeling	439
rotary furnaces for melting and holding	377
treatment of liquid cast iron in the mold	179
ISO standards vs. ASTM standards for copper-base alloys	73

L

Ladle metallurgy effect on energy consumption	175
Ladles	
preheating in steel foundries	177
reactions of molten steel in bull ladle tapping	567
Latent heat	
comparison of four models during phase-change processes	947
in computer-aided cooling curve analysis of Al alloy A356	939
Lead	
effect on fluidity of copper-base alloys	551
lead-free copper alloys	1
Levitation melting of iron	371
Loading condition effects on ductile iron castings	337

M

Machinability improvement in lead-free copper alloys	1
Magnesium and magnesium alloys	
effect of Sr on shrinkage porosity in Mg castings	353
for treatment of ductile iron in a modified tundish ladle	235
Manganese	
additions for deoxidizing steel	566
antimony in medium-Mn steel	221
effect on critical temperatures of ductile iron	716
Materials handling	
controlling and monitoring systems for conveyors	393
Measurement system analysis and control	855
Mechanical attrition effects on reuse of foundry sand	203
Mechanical properties	
comparison of in copper-base alloy test bars	73
effect of alloying elements on in ADI	109
effect of porosity on in Al alloys	663
effect of trace elements on ZA alloys	769
influence of antimony on properties in Mn steels	222

influence of C, Si and Nb on monels	239
of four grades of ADI	835
reproducibility of measurements in ductile iron	1025
tensile and fatigue properties of ADI	93
Metal matrix composites (MMCs)	
effect of remelting, casting and heat treatment on	1033
SiC particle behavior in during directional solidification	273
Methylene blue (MB) for analysis of bentonites and system sands	313
Methyl formate for gassing coldbox molds and cores	483
Microporosity. <i>See:</i> Porosity	
Mischmetal influence on properties of ZA alloys	857
Modification	
effect of cooling rate on in Al alloy B319	385
effect on fluidity of Al alloys	537
effect on porosity in Al alloys	660
effect on properties of Al alloy A356	415
progress made in the last 25 years	673
Sr modification of Al with master alloys	847
uses for modified Al-Si castings	821
Mold coatings	
for copper-base permanent test bar molds	73
to prevent surface deterioration in nodular iron	14
Mold compaction techniques effect on casting quality	50
Mold quality indicator	37
Molybdenum	
effect on thermal fatigue properties of gray iron	253
used for alloying ADI	106
Monel structure and properties influenced by C, Si and Nb	239
Monitoring systems for conveyors	397
Montmorillonite	
MB analysis	313

N

Nickel. <i>See also:</i> Nickel alloys	
in copper-base alloys	113
used for alloying ADI	106
Nickel alloys	
failure analysis of Hastelloy C pump impellers	68
filtration of nickel-base castings	209
influence of C, Si and Nb on monels	239
Niobium influence on structure and properties of monels	239
Nitrogen	
content in carbon and low-alloy steels	23
methods for measuring content	143
used in bottom stirring in EAFs	151
Nobake binders. <i>See also specific type of binder</i>	
bench life vs. tensile strength in nobake sands	50
curing parameters in steel casting	802
determining quality of PUNB and FNB cores	37
developments in ester-cured phenolic systems	183
developments in nobakes for steel casting	801
EPC accuracy compared to nobake process	323
esters in sodium-silicate bonded sands	363
Nodular iron. <i>See:</i> Ductile iron	
Nodule count	
in ADI	98
in ductile iron	908
in SG iron	191
Nondestructive testing (NDT)	
ultrasonic testing of ductile iron bars	309
volumetric CT	
for porosity characterization in die castings	281
for porosity detecting in Al die castings	289
x-ray analysis	
of microporosity in Mg castings	355
Normalizing mixtures of bentonites in green sand	503
Notch yield ratio vs. fracture toughness of Al alloy B201	697

Nucleation	
nucleation kinetics of iron	583
nucleation potential of SG iron	191
Numerical simulation. <i>See also:</i> Computer applications	
for designing steel castings	29
latent heat release models	947
of Hazlett process for continuous casting	1043
of roll casting process to study heat line formation	955
of solidification and thermal stresses	593
3-D numerical model for defect prediction	925, 1079
to determine solidification times and cooling rates in DI	719
to predict shrinkage in ductile iron	155

O

Oxidation	
causing carbon loss in molten iron	344
effect of carbon content on Fe-20% Cr alloy resistance to	17
in a rotary furnace	379
of charge metal in the cupola	459
of liquid iron alloys	371
oxidation losses/gains in steel	566
Oxide laps in film-forming alloys	226
Oxy-fuel burners in steel foundries	175
Oxygen	
effect on penetration defects in iron	707
methods for measuring content	143

P

Para toluene sulfonic acid in furan resin	9
Patternmaking using CAD/CAM	121
Penetration	
effect of sand-metal contact angle on penetration defects	785
of metal in steel castings	798
parameters affecting metal penetration in cores	809
penetration defects in iron	707
Permanent mold casting	
comparison of mechanical properties in copper-base alloys	73
fluidity of A356-SiC composite	577
fluidity of copper-base alloys	547
Phase transformation in cast irons	713
Phenolic hotbox binders	
reactivity measurements of acid soluble materials in sand	469
Phenolic urethane coldbox sand properties after reclamation	747
Phenolic urethane nobake (PUNB) binders	
PTSA causing surface deterioration in nodular iron	9
reactivity measurements of acid soluble materials in sand	469
vs. a new ester-cured phenolic nobake system	187
Pipe volumes in aluminium alloy A356	418
Piping in steel casting risers	410
Polymethyl methacrylate (PMMA) patterns	
used for EPC ductile iron castings	58
wetting and wicking of refractory coatings	297
Porosity	
characterization by volumetric CT in die castings	281
detection by volumetric CT in Al die castings	289
determined by the Tatur test in Al alloy A356	417
effect of Al melt treatments on formation of	415
effect of modification on formation of	679, 823
effect of Sr on shrinkage porosity in Mg castings	353
formation during solidification	989
formation in MMCs	1035
in grain-refined Al-4.5% Cu castings	685
literature review of porosity evolution during solidification	979
porosity problems in Al casting	657
predicting in Al alloy A356	399, 647

reduction in diecasting using vacuum assist	530
tendency in SG iron	129
Pouring system design using CAD for steel castings	1087
Pump impeller castings, failure analysis	63
Pyrolysis in EPC ductile iron castings	57

Q

Quality	
assessment in SG iron	189
mold quality indicator influence on casting quality	40

R

Reclamation of investment shell components	1005
Recycling and contamination of modified Al alloys	830
Refractory coatings/linings	
cupola linings	777
linings in a rotary furnace	377
thermal analysis of EPC coatings	513
wetting and wicking properties in EPC coatings	297
Roll casting process	955
Rotary furnaces for iron melting	377
Runner systems	
design in vertically parted molding	753
vertical runners	763

S

Sand. <i>See also specific sand type</i>	
bonding properties of chemical binder systems	743
effect of temperature on gassing coldbox molds and cores	484
factors that influence MB analysis of	313
reactivity measurement of acid-soluble materials in	469
reuse of solid foundry waste	201
thermal and chemical analysis of EPC sand	515
using mold quality indicator to determine density of	37
Sand casting	
effect of Sr on shrinkage porosity in Mg castings	353
fluidity of A356-SiC composite	577
Sand cores	
water-soluble cores for steel castings	123
Sand defects due to PTSA in furan resin	9
Sand reclamation	
bonding properties of reclaimed sand containing bentonite	743
bonding properties of reclaimed system sand	733
economics of a central sand laundering system	1049
universal sand reclaimer	725
Scrap preheating for EAFs	176
SG iron. <i>See:</i> Spheroidal graphite iron	
Shell binder sand properties after reclamation	745
Shrinkage	
centerline	
in copper-base perm mold test bars	76
in Mg modification of ductile iron	235
effect of modification on	823
numerical simulation to predict in ductile iron	155
porosity	
effect of Sr on microshrinkage in Mg castings	353
tendency in SG iron	129
total in treated aluminium alloy A356	419
Silicon	
additions for deoxidizing steel	566
crystallography of Al-Si eutectic structure	620
effect on critical temperatures of ductile iron	715
influence on structure and properties of monels	239

in producing low nitrogen steels	24	tensile strength vs. bench life in nobake sands	50
Silicon brasses and bronzes		Thermal analysis	
comparison of mechanical properties in test bars	73	for determining porosity in Al alloy A356	403
Silicon carbide particles in MMC castings	273	for determining shrinkage in ductile iron	159
Sodium silicate sands		Thermal conductivity measurement to determine nitrogen content ...	143
ester binders in	363	Tundish ladles modified for Mg treatment of ductile iron	235
Solidification			
control and monitoring in ductile iron	910		
directional		U	
effect of Sr on in Mg castings	357	Ultimate tensile strength	
in metal matrix composite castings	273	effect of alloying elements on in ADI	109
in steel castings	409	of ADI	98
porosity formation during	989	Ultrasonic testing of ductile iron bars	309
heat transfer coefficient during Al solidification	863	Urethane binder development for steel casting	801
literature review of evolution of porosity during	979		
porosity formation during nondirectional solidification	992		
simulation		V	
FEM simulator for solidification modeling	1057	Vacuum assist for Al diecasting	529
in Al-4.5% Cu alloy	690	Vanadium influence on thermal fatigue resistance in gray iron	253
in Al alloy A356	401	Velocity of molten metal	
in ductile iron	163	controlling through gating design	225
using numerical simulation in ductile iron	719	losses in EPC because of pattern decomposition	519
modeling of solidification kinetics	583	Venting ester-cured phenolic coldbox cores and molds	485
thermal parameters in Al-4.5% Cu alloy	686	Vertically parted molding	
Spheroidal graphite (SG) iron. <i>See also:</i> Ductile iron		mixing pressurized/nonpressurized gating systems in	761
melt quality assessment using computers	189	runner system design in	753
shrinkage behavior	129	Volumetric computer tomography (CT)	
Squeeze casting effects on Al alloy properties	539	for porosity characterization in die castings	281
Steel		for porosity detection in Al die castings	289
antimony in medium-manganese cast steels	221		
CAD/CAM for designing pouring process	1087	W	
computer-aided chill design	27	Waste treatment and utilization	
development of a high modulus, low CE alloy	969	reuse of foundry sand	201
directional solidification in	409	Water cooling in steel foundries	175
effect of mold-steel interface on casting surfaces	797	Water modeling of molten metal in a cupola	345
energy conservation in steel foundries	173	Water-soluble sand cores for steel casting	123
failure analysis of stainless steel pump impellers	63	Wear resistance of Fe-20% Cr alloy affected by carbon content	17
filtration of high-alloy and corrosion-resistant castings	209	Wetting and wicking of an EPC refractory coating	297
finite element method (FEM) for solidification modeling	1061		
hot tearing of low-carbon castings	265	X	
thermochemistry of acid arc melting of carbon cast steel	561	X-ray analysis of microporosity in Mg castings	355
water-soluble sand cores for	123		
Storm water regulation compliance by foundries	935	Y	
Strontium		Yield strength	
effect on shrinkage porosity in Mg castings	353	influence of alloying elements on monels	239
factors affecting modification with master alloys	847	of ADI	98
uses for modified Al-Si castings	821	Yellow brass mechanical properties in test bars	73
Surface deterioration in nodular iron	9		
Surface finish		Z	
lustrous carbon defects in steel castings	799	Zinc and zinc alloys	
using mold quality indicator to determine quality of	50	dezincification	2
		effect of trace elements on ZA alloys	769
		influences of fluxes on properties of ZA alloys	857

Title Index

- A**
- Accuracy and Precision of Iron and Aluminum Castings
Made by EPC, Nobake and Green Sand Methods
(AFS Research) (92-33)323
 - Aluminum Bronze Total-Cost Analysis (92-136)467
 - Antimony-Containing Medium-Manganese Cast Steel (92-154)221
 - Applicability of Thermal Parameter-Based Porosity
Criteria to Long-Freezing Range Aluminum Alloys
(AFS Research) (92-166)399
 - Application of DSM-2 Software on
Pouring Process Design (92-19)1087
 - Art and Science of Modification, The: 25 Years of Progress
(Silver Anniversary Paper, Div. 2) (92-164)673
- B**
- Beneficiation and Reuse of Foundry Sand Residuals:
A Preliminary Report (92-143)201
 - Bonding Properties of Core Process Binders on Reclaimed
Spent Sands Containing Bentonite (92-94)743
 - Bonding Properties of Reclaimed System Sand and
Their Effect on Casting Quality (92-93)733
- C**
- CAD/CAM in the Small to Medium-Size Pattern Shop (92-144)121
 - Cast Lead-Free Copper-Graphite Composite Alloys
With Improved Machinability (92-159)1
 - Casting Defect Analysis Expert System (92-21)881
 - Casting Fluidity of Aluminum A356-SiC
Cast Particulate Composite (92-153)575
 - Central Sand Laundry Economics (92-145)1049
 - Chemical and Physical Factors That Influence MB
Analysis of Bentonites and System Sands (92-32)313
 - Comparison of Four Different Latent Heat Models
During the Phase-Change Process (92-127)947
 - Comparison of Mechanical Properties of Cu-Base Alloys in
ASTM and ISO Permanent Test Bar Molds (92-79)73
 - Comprehensive Casting Analysis Model Using a
Geometry-Based Technique Followed by Fully
Coupled, 3-D Fluid Flow, Heat Transfer and
Solidification Kinetics Calculations (92-118)925
 - Computer-Aided Chill Design for Steel Castings (92-23)27
 - Computer Modeling of Heat Flow and Microstructure
Fineness in Chill-Cast Aluminum Alloy LM-24 (92-57)611
 - Considerations in the Application of Numerical Simulation to
Shrinkage Prediction in Ductile Iron Castings (92-196)155
 - Contribution to the Research of
Hot Tears in Steel Castings (92-17)265
 - Controlling DAS in Aluminum Alloy Castings
Using Chills (92-35)667
 - Coordinate Measuring Machine (CMM), The:
New Technology for Foundry Tooling
(Summary of Panel Discussion) (92-51)609
 - Correlation of Notch Yield Ratio and Fracture Toughness of
B201 Al Casting Alloy (AFS Research) (92-205)697
 - Corrosion and Corrosion-Fatigue of Ductile Irons (92-16)873
 - Critical Gate Velocities for Film-Forming Casting Alloys:
A Basis for Process Specification (92-37)225
 - Critical Temperatures in Ferritic Ductile Irons
(AFS Research) (92-214)713
- D**
- Detection and Visualization of Porosity in Volumetric
CT Scans of Aluminum Die Castings (92-119)289
 - Detection of Stresses in Ductile Iron Bars
Using L_{CR} Wave Technique (92-114)309
 - Determination of Clay Consumption by
Geometric Modeling (92-83)619
 - Determination of Critical Solidification Times in
Ductile Iron Castings (92-46)719
 - Developing into the Future (Hoyt Memorial Lecture) (92-209)907
 - Development of a High Modulus Graphitic Cast Alloy
(AFS Research) (92-165)969
 - Development of an As-Cast Age-Hardenable
Cu-Ni-Sn Alloy (92-132)113
 - Directional Solidification of Al-Base/SiC Particle
Metal Matrix Composite Castings (92-113)273
 - Directional Solidification of Steel Castings (92-04)409
 - Ductile Iron Treatment Using Pure Mg in a
Modified Tundish Ladle (92-40)235
- E**
- Effect of an Engineered Sodium Bentonite on the
Properties of a Green System Sand (92-121)793
 - Effect of Mold-Steel Interface Reactions on Casting Surfaces
(Silver Anniversary Paper, Div. 4) (92-66)797
 - Effect of Remelting, Casting and Heat Treatment on
Two Al-Si Sic-Particle Composites (92-123)1033
 - Effect of Strontium on the Shrinkage Microporosity in
Magnesium Sand Castings (92-115)353
 - Effect of Trace Elements on Casting Characteristics and
Mechanical Properties of Cast ZA Alloys (92-109)769
 - Effects of Squeeze Casting Process on Mechanical
Properties of Aluminum Diecasting Alloy (92-87)539
 - Effects of Vacuum Assist in High-Pressure,
Horizontal, Cold-Chamber Diecasting (92-137)529
 - Electric Arc Furnace Bottom Stirring: A Look at
Technologies and Benefits (92-142)147
 - Energy Conservation in the Steel Foundry (92-01)173

Evolution of Porosity During Solidification, Part 1: A Literature Review (92-191)	979
Evolution of Porosity During Solidification, Part 2: A Theoretical Analysis (92-219)	989
Examination of Runner System Design in Vertically Parted Molding (92-104)	753
Experimental and Numerical Study of Criteria Functions for Predicting Microporosity in Cast Aluminum Alloys (92-163)	647
Experimental Investigation and Mathematical Modeling of Carbon Transport in a Cupola (AFS Research) (92-68)	343

F

Factors Affecting Fatigue Strength of Commercial Ductile Iron Castings (92-44)	
Factors Affecting Modification of Al-Si Alloys by Adding Sr-Containing Master Alloys (92-194)	847
Factors Controlling Heat Transfer Coefficient at the Metal-Mold Interface During Solidification of Aluminum Alloys: An Analytical Study (92-10)	863
Failure Analysis of Pump Impellers (92-72)	63
Fatigue Crack Growth Behavior of Austempered Ductile Cast Iron (92-130)	135
Feasibility of Reclaiming Shell Material from Investment Castings (AFS Research) (92-31)	1005
FEM Simulator for Efficient Casting Solidification Modeling (92-149)	1057
Filtration of High-Alloy, Corrosion-Resistant and Nickel-Base Valve Body Castings (92-139)	209
Fluidity of Aluminum-Silicon Casting Alloys (92-147)	533
Fluidity of Permanent Mold Cast Copper-Base Alloys (92-102)	547
Flux Practice in Aluminum Melting (Panel) (92-88)	737

G

Grain Refinement, Modification and Melt Hydrogen— Their Effects on Microporosity, Shrinkage and Impact Properties in A356 Alloy (92-39)	415
Growth Crystallography of Eutectic Phases in Unmodified Al-Si Casting Alloys (92-69)	619

H

Hardness and Hardness Distribution Influence on Wear Performance of Blades in Centrifugal Blasting Machines (92-50)	887
High-Carbon, V-Mo, High-Strength Gray Cast Iron for Castings Subjected to Thermal Fatigue, A (92-96)	253
Hydraulics-Based Model of Fluid Flow in Horizontal Gating Systems, A (92-101)	917

I

Improving Energy Efficiency in a Coreless Induction Heel Melter (92-77)	571
Influence of C, Si and Nb on the Structure and Mechanical Properties of Cast Monels (92-78)	239
Influence of Carbon Content on Oxidation and Wear Resistance of Fe-20%Cr Alloy at Elevated Temperatures (92-02)	17

Influence of Flux and Microaddition on the Microstructure and Properties of Zn-Al Foundry Alloys (92-06)	857
Investigation of Wetting and Wicking Properties of Refractory Coating in the EPC Process (AFS Research) (92-167)	297
Investigation on the Role of Sand-Metal Contact Angle in the Formation of Casting Penetration Defects, An: Phase II, (AFS Research) (92-60)	785

K

Keeping Conveyor Efficiency on Track: Systems to Control, Monitor and Stabilize Belt Conveyors (92-152)	393
Kinetics of Oxidation of Multicomponent Liquid Iron Alloys By Oxidizing Gases Using Levitation Melting (AFS Research) (92-67)	371

M

Macro and Micro Modeling of the Solidification Kinetics of Castings (92-48)	583
Mathematical Model of a Cupola Furnace—Part I: Formulation and an Algorithm to Solve the Model (92-215)	425
Mathematical Model of a Cupola Furnace—Part II: Computed Profiles and Discussion of Intrinsic Parameters (92-216)	439
Mathematical Model of a Cupola Furnace—Part III: Effect of Operating Conditions on Cupola Performance (92-217)	447
Mathematical Model of a Cupola Furnace—Part IV: Carbon Pickup, Metal Charge Oxidation and Cupola Shell Heat Losses	459
Measurement and Visualization of the Filling Pattern of Molten Metal in Actual Industrial Castings (92-84)	489
Measurement of Core and Mold Quality ' Using a Mold Quality Indicator (92-54)	37
Measurement System Analysis and Control (92-49)	855
Melt Quality Assessment of SG Iron Through Computer-Aided Cooling Curve Analysis (92-112)	189
Melting Interface Morphology of Al-4%Cu, Eutectic Al-Cu and Al-Si Alloys (92-148)	961
Microporosity in Grain-Refined Aluminum-4.5% Copper Alloys and Its Relation to Casting Practice (92-181)	685
Mixed Pressurized/Nonpressurized Gating System for Vertically Parted Molds (92-105)	761
Model Study of Treatment Inside the Mold, A (92-05)	179
Modern Oxygen and Nitrogen Instruments Used in the Metals Industry (92-138)	143

N

New Developments in Ester-Cured Phenolic Nobake Binder Systems (92-52)	183
New Generation of Rotary Furnaces for Iron Melting and Holding, A (92-108)	377
New Refractories for Cupola Melts (92-126)	777
Nodular Iron Surface Deterioration Due to PTSA in Resin (92-07)	9
Numerical Simulation of Solidification and Thermal Stresses During Solidification of a Restrained Bar Test Casting (92-150)	593
Numerical Studies of Heat Line Formation During the Roll Casting Process (92-128)	955

O

- Optimization of Casting Process through Simulation for
Aluminum Castings (92-162) 1067

P

- Porosity Characterization by Industrial Volumetric
Computed Tomography (92-116) 281
Porosity Factor in Quality Aluminum Castings (92-11) 657
Proper Gassing of Ester-Cured Phenolic Coldbox
Cores and Molds (92-56) 483
Properties of Green Sand Bonded with Mixtures of
Calcium and Sodium Bentonites (92-92) 499
Pyrolysis-Related Artifacts in EPC Ductile Iron (92-64) 57

Q

- Quantitative Study on the Shrinkage Behavior of SG
Iron with Derivative Dilatation Analysis (92-97) 129

R

- Reactivity Measurement of Acid Soluble Materials in
Foundry Sand and Its Relationship to Performance of
Some Chemical Binder Systems (92-55) 469
Reproducibility of Mechanical Property Measurements in
Ductile Iron (AFS Research) (92-90) 1025
Role of Graphitic Inoculants in Ductile Iron, The (92-151) 899

S

- Simulation of the Hazelett Process Using
Nonuniform Grid (92-129) 1043
SIMULOR: 3-D Numerical Simulation for
Defect Prediction (92-212) 1079
State-of-the-Art Use of Sb-, Na- and Sr-Modified
Al-Si Casting Alloys (92-146) 821
Storm Water Regulation Compliance by Foundries (92-178) 935
Structure and Properties of ADI as Affected by
Low Alloy Additions (92-100) 103

- Studies on Ester Binders and Ester-Hardened
Molding Sands (92-38) 363
Study of Fracture and Fatigue Behavior of
Austempered Ductile Iron (92-133) 833
Study of Functional Relationship of Fraction of
Solid with Temperature in Mushy Range for A356
Al Alloy (92-195) 939
Study of the EPC Mold Filling Process Using Metal
Velocity and Mass and Energy Balances (92-111) 519

T

- Tensile and Fatigue Properties of Relatively Pure ADI (92-98) 93
Theoretical Analysis of the Effect of Oxygen on the
Penetration Factor in the Iron/Silica System (92-213) 707
Thermal Analysis Studies on the Effect of
Cooling Rate on the Microstructure of 319
Aluminum Alloy (92-141) 383
Thermal and Chemical Analysis of the Foam, Refractory
Coating and Sand in the EPC Process (92-110) 509
Thermal Fatigue of Cylinder Head Alloys (92-160) 601
Thermochemistry of Acid Electric Arc Melting of
Carbon Cast Steel (92-95) 561

U

- Universal Sand Reclaimer, The: Eight Years of
Foundry Experience in Processing Furan and
ECP Bonded Sand (92-24) 725
Updating an Induction Melt Shop: A Progress Report (92-158) 639

V

- Variables Affecting the Nitrogen Content of Carbon
and Low-Alloy Acid Electric Arc Furnace Steels (92-08) 23

W

- Water-Soluble Sand Core for Steel Castings:
Development and Characterization, A (92-85) 123

